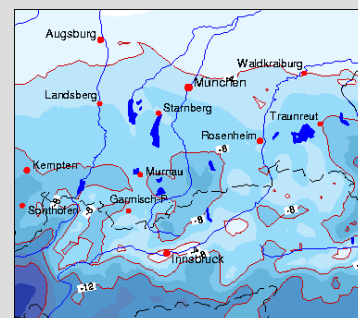


Advanced Cluster Solutions from NEC for Numerical Models at IMK-IFU

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High Resolution Modeling in Atmosphere

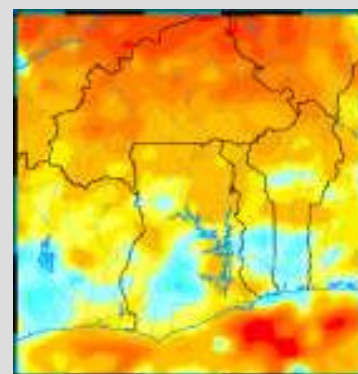
High-resolution atmospheric modeling at the km-scale including hydrological modeling over complex topography is an essential tool for decision makers. Exact forecasting of heavy precipitation events and related flooding events can minimize the effects on the economics and population. The Institute for Atmospheric Environmental Research IMK-IFU is using a HPC PC-Cluster from NEC to run the numerical models determining the temporal and spatial variations of major environmentally relevant atmospheric parameters, and quantifying the resulting impacts on regional climate, UV radiation, pollution, and their ecological and economic consequences.



Short-time Weather Forecast over Complex Terrain

MCCM – An Unique Tool for Climate and Meteorology

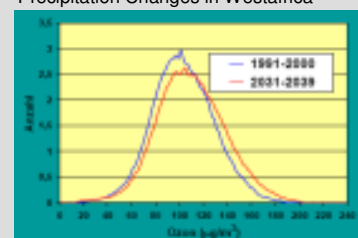
The Multiscale Climate Chemistry Model (MCCM) has been developed at IMK-IFU and includes many physical processes in the earth system like biogenic emissions, radiation and deposition of pollutants. It is based on the Mesoscale Model MM5, a non-hydrostatic atmospheric model with terrain following coordinates. It is capable of 4-dimensional data-assimilation and has an interface to standard weather forecast models. Explicit cloud schemes and adapted parameterization for high resolution modelling over complex terrain allow detailed air quality and regional climate studies in Metropolitan Areas worldwide as well as other consulting services related to atmospheric pollution.



Precipitation Changes in West Africa

LX Series - Intelligent HPC Cluster Solution designed by NEC

The **LX Series** Cluster Solution provided includes 80 2-way **NEC Express Servers** with Intel Xeon processors. The 96-port **Voltaire** Switch ensures a balanced combination of server hardware and high-speed interconnect together with the outstanding support of the required software layers on top. The LX Series management concept is based on **NEC OSCAR Pro** which combines the advantages of an open source project with the professional support of the NEC Linux Group located in Europe. Operational Forecasts are produced several times per day for the Alpine Region and two regions in Africa and China. For further details please have a look to <http://imk-ifu.fzk.de/>



Effect of Global Warming on Air Quality

